REMARKS

Applicant's claimed invention is a *synthetic cork closure for a liquid container.* Applicant consistently uses the term "synthetic cork closures" in the disclosure and description of the field of invention as "to synthetic cork closures for liquid containers and to processes for making such closures." Whether from the term "synthetic cork" or from "for a liquid container" it is clear that Applicant's claimed invention covers something much more specific than any closure that could possibly be coated using a processes listed in Applicant's claims. One cannot read out all modifiers from the preamble of the claims as asserted by the Office, because that would leave merely "closure." Instead, interpreting the claims requires reading the entire disclosure as the Court of Appeals for the Federal Circuit points out is always necessary. As that court has said:

> Whether to treat a preamble as a limitation is a determination resolved only on review of the entire[ ] ... patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.
> Poly-America, L.P. v. GSE Lining Technology, Inc., 383 F.3d 1303, 1309, 72 U.S.P.Q.2d 1685 (Fed.Cir. 2004).

> [I]f the preamble helps to determine the scope of the patent claim, then it is construed as part of the claimed invention. Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir. 1995) ("[W]hen the claim drafter chooses to use *both* the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.").
> NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282, 1305-1306, 75 U.S.P.Q.2d 1763 (Fed.Cir. 2005).

Applicant's claims are clearly ones where a review of the entire disclosure reveals that the preamble " helps to determine the scope of the patent claim, then it is construed as part of the claimed invention." Applicant's claims do not include all closures that might be coated. Barn doors are closures that might be coated, but are clearly not covered by applicant's claims.

It is clear from Applicant's disclosure that the phrase "synthetic cork closure" has more structural significance than "any closure made of a material that might be described as synthetic cork." Applicant's disclosure at page 1, lines 9-13 state, "Synthetic corks are typically made from a foamed polymer and are formed using either a profile extrusion method or injection molding or may be punched out of foamed sheets. Hybrid corks also exist where natural cork is ground and recombined using binding agents. Synthetic corks and processes for preparing them are described in U.S. Patents 5,975,322, 5,904,965, 5,855,287, 5,710,184, 5,496,862 and 4,363,849." **"Cork" is used as a noun, a type of closure, not a type of synthetic material.** Those patents are incorporated by reference in the Specification at page 2, lines 3-5. They represent a range of types of closures for liquid containers. While reference to each whole patent is required for full understanding, titles are informative:

US5975322	Wine bottle closure with threads
US5904965	Synthetic closure
US5855287	Synthetic closure for removable insertion into a wine bottle
US5710184	Molded styrene block copolymer closure for a liquid container
US5496862	Molded styrene block copolymer closure for a wine container
US4363849	Foamed thermoplastic resin cork having a natural cork-like appearance and a method of injection molding the cork

US5904965 claims "A stopper or closure for a fluid product retaining container constructed for being inserted and securely retained in a portal forming neck of the container..."

Thus, while these patents cover much more than the standard cylindrical or tapered stopper sometimes referred to as a 'cork," for instance closures that extend from inside to outside a liquid container and optionally have threads, they do not extend to cover something broader than closures for typical liquid containers, such as bottles.

The term "cork" has many definitions, some indicating structure, some indicating the material, natural cork, from the bark of a tree. In the terms "synthetic cork" and "cork closure" Applicant has clearly used "cork" to indicate a generalized type of closure **structure** rather than a material from which the structure is made. Therefore, it is improper to either ignore the term "cork" in the claims or to read it in the sense of natural cork or a material like natural cork.

The Court of Appeals for the Federal Circuit has said that a term must be understood in the context in which the inventor presents it. See In re Glaug, 62 U.S.P.Q.2d 115, 12002 U.S. App. Lexis 4246, 8-12 (Fed. Cir. 2002).

> It is well established that when a general term is used to introduce a concept that is further defined more narrowly, the general term must be understood in the context in which the inventor presents it. *Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477, 45 USPQ2d 1429, 1432 (Fed. Cir. 1998)* ("This rule of construction recognizes that the inventor may have imparted a special meaning to a term in order to convey a character or property or nuance relevant to the particular invention.")... We thus agree with Glaug that the Nomura reference does not present a prima facie case of obviousness ...

The Office must examine using the meaning that is clear from Applicant's specification.

The Office has declared on page 6 of the Office Action, "The claims currently recite no structural limitations." This ignores the meaning of the word "cork" in Applicant's Specification and Claims as explained. The synthetic cork closure of Claim 1 provides antecedent for "the cork" later in the claim. Furthermore, Claims 2, 3 and 9 refer to the end or ends of the cork. Cork as used in Applicant's claims is a noun of structure and cannot refer to other meanings of "cork" in context.

Applicant states that the problem to be solved is that the prior art synthetic corks have "uncontrolled permeation of gases in and out of the cork and the scalping of flavors caused by the polymers used." (Specification at page 1, lines 14-15) Then Applicant's invention addresses the improvement of providing "synthetic corks that have high resistance

to the permeation of gases in and out of the cork." (Specification at page 1, lines 16-17) Since Applicant points out that this is the problem to be solved and presents a solution for it, this is the problem addressed by Applicant. The Office noted a synthetic cork patent claiming to overcome this problem. Regardless of that statement or of other patents, Applicant perceived this problem and solved it as shown by Applicant's examples of the invention.

To solve the problem, Applicant's corks have at least a portion of the synthetic cork closure coated with a gas impermeable polymer coating composition. The coating is of the type that is obtained when the coating process is selected from the group consisting of analox gravure coating, offset coating, pad print coating, screen coating, stencil coating, brush coating, spray coating, pouring, painting, rolling, dipping, dripping a composition containing the gas impermeable polymer onto the surface of the cork, and combinations thereof.

Applicant's examples of the invention show that these methods of coating result in a structural effect. These processes provide penetration into the synthetic cork as shown in Applicant's examples of the invention. The penetration results in, among other features, difficulty separating or removing the coating from the synthetic cork closure, again as shown in Applicant's examples of the invention. These examples do make a showing of the effect of the processes involved and of the effect of solvents followed by evaporation, as contrasted with methods that do not have this feature and could be more easily separated. Note that the results of examination by microscope are discussed at page 6, lines 27-28. At least one structural difference is noted. Evidence comparing this result with that of proposed combinations of references is not possible at least in part because the prior art coating has not been sufficiently identified.

Applicants have respectfully requested that the Office supply a reference substantiating each of the following assertions as required CFR §1.104 (d)(2):
That Rhoplex R-9 reads on the polymer of Applicant's Claims 6 and 7; and
That "thixotropic agent" and "plasticizer" are interchangeable.

The Office has provided neither.

The Office did not address the absence of a reference teaching the identity of Rhoplex R-9, but maintained on page 2 of the Office Action that it was understood to read on Applicant's Claim 6. Applicant has no resource to special knowledge of the chemical identity of Rhoplex R-9 and has not been able to ascertain its content. CFR §1.104 (d)(2) makes it clear that providing proof that this material reads on Applicant's Claim 6 is the responsibility of the Office. No such proof has been offered. In GB1087801 it is described only as "an emulsion acrylic modified vinylidene chloride polymer." Applicant's Claim 6 describes vinylidene chloride polymers in terms of percentages of vinylidene chloride and percentages of comonomers polymerizable therewith. There is no indication that Rhoplex R-9 meets the requirements of Applicant's Claim 6.

Instead of evidence that plasticizer reads on thixotropic agent the Office stated, on page 7 of the Office Action "The Examiner points applicant to the definitions they provided. Specifically, a plasticizer is included into a polymer to improve workability, which is understood to be the same as decreasing the viscosity of the polymer – thereby meeting the definition of at 'thixotropic agent." Improving workability of a plastic is not the same as providing thickening (viscosity) which displays shear thinning of a get. "Understood" doesn't create fact especially when the art knows differently. Further on page 8, the Examiner wrote, **"However, as noted above, said terms are understood to be synonyms."**

Again, "understood to be" does not make something that is known within the skill in the art not to be true to become fact. Those skilled in the art know as demonstrated by the definitions in the cited references and supplied with the response to the previous Office Action that thixotropic agents and plasticizers are different types of substances, used for different purposes, effective in different states of matter. Understanding improving workability to be the same as decreasing viscosity and therefore considering them "synonyms" ignores the facts known to those skilled in the art. Plasticizers make solid polymers more flexible. Liquids, not solids, have viscosity. Low viscosity liquids are, in fact, not very workable as plastics. A summary of the features of the two types of additives is charted below.

	Used in	Purpose	Examples from cited references and Applicant's specification	Type of substance of typical examples
plasticizer	Polymers, plastics; Note that flexibility is a property of a solid.	To make a solid polymer (plastic) more flexible and workable	phthalates; e.g. dibutyl terephthalate	Relatively nonvolatile liquids
Thixotropic agent	Liquids or gels Note that viscosity is a property of a liquid.	To control rheology of liquids; thicken or gel until stirred and show a decrease in viscosity when stirred or shaken, e.g. non-drip paints	fumed silica, kaopolite, bentonite, talc and mixtures thereof	Solids

The art recognizes the substances as different because they are **not** the same or similar. The Office must do likewise.

Referring to both as processing aids does not render them interchangeable. They have different effects on different states of polymers. Saying that plasticizers and thixotropic agents are interchangeable because there may be a term inclusive of both is analogous to saying aspirin and eye drops are interchangeable because both can be called medicines.

Applicant further requests that the Office supply a reference supporting the allegation that an emulsion teaches a solvent as required by CFR §1.104 (d) (2).

This request is in response to an allegation on page 7 of the Office Action of October 19, 2005 that an emulsion teaches use of a solvent. Those skilled in the art know that solvents are involved in solutions which are different, very different, from emulsions.

Applicant finds that a clear explanation of the relationship between solvent and solution and the huge difference between an emulsion and a solution, without reference to the different intermolecular forces that are well known to those skilled in the art, comes from General Chemistry Online Glossary at http://antoine.frostburg.edu/chem/senese/101/solutions/glossary.shtml

solvent. The most abundant component in a solution .

solution. homogeneous mixture. Compare with heterogeneous mixture . A sample of matter consisting of more than one pure substance with properties that do not vary within the sample. Also called a homogeneous mixture.

homogeneous mixture. solution. Compare with heterogeneous mixture , element and compound. A sample of matter consisting of more than one pure substance with properties that do not vary within the sample.

emulsion. Compare with colloid . A colloid formed from tiny liquid droplets suspended in another, immiscible liquid. Milk is an example of an emulsion.

colloid. A colloid is a heterogeneous mixture composed of tiny particles suspended in another material. The particles are larger than molecules but less than 1 μm in diameter. Particles this small do not settle out and pass right through filter paper. Milk is an example of a colloid. The particles can be solid, tiny droplets of liquid, or tiny bubbles of gas; the suspending medium can be a solid, liquid, or gas (although gas-gas colloids aren't possible).

heterogeneous mixture. heterogeneous. Compare with homogeneous mixture solution, element, and compound. A sample of matter consisting of more than one pure substance and more than one phase . Blood, protoplasm, milk, chocolate, smoke, and chicken soup are examples of heterogeneous mixtures.

immiscible. immiscibility. Compare with miscible and partial miscibility. Two liquids are considered "immiscible" or unmixable if shaking equal volumes of the liquids together results in a meniscus visible between two layers of liquid. If the liquids are completely immiscible, the volumes of the liquid layers are the same as the volumes of liquids originally added to the mixture.

miscible. miscibility; liquid miscibility. Compare with immiscible and partial miscibility. Two liquids are considered "miscible" or mixable if shaking them together results in a single liquid phase , with no meniscus visible between layers of liquid.

Thus, an emulsion is a heterogeneous mixture of immiscible liquids which is totally different from a solution and does not teach or suggest a solvent. A solvent is the most abundant component in a solution, which is a homogenous mixture, the opposite of a heterogeneous mixture, which defines colloids, including emulsions.

Claims 1, 3-8, 10, 11, and 13 stand rejected under 35 U.S.C. § 103 as unpatentable over GB 1087801 (Sheller) in view of US 5,710,184 (Burns). Sheller teaches a cork gasket with a coating of acrylic modified vinylidene chloride copolymer alleged to lower vapor transmission. One coating, Rhoplex R-9 is alleged to read on the polymer of Claim 6. The plasticizer is alleged to read on a thixotropic agent as in Claim 10 and following. The coating is alleged to be applied to the entire outer surface "of a cork" and to be applied by immersion or spray coating and drying in a heating oven. The Office acknowledges that Sheller does not teach synthetic cork, but alleges that Burns teaches that natural cork suffers certain problems and that a molded closure may be used to replace cork. The Office alleges it would be obvious to substitute the synthetic cork of Burns for the cork

of Sheller. The motivation to combine the references is alleged to be that synthetic cork has improved characteristics as taught by Burns.

The Office takes the position that limitations to claims 1, 7, 8, and 10 that relate to method of coating and/or to solvent are method limitations that do not patentably distinguish a claimed product from a product taught in the prior art unless it can be shown that the method of making the product inherently results in materially different product. The Office alleges the solvent is a method limitation because it "is evaporated away in the final product."

As explained previously, Applicant's examples, including the microscopic examination therein, show that the manner of applying the coating does have structural results. The coating composition, being dissolved, was shown by microscopic examination to penetrate into the cork. This had the advantage of resulting in a tightly adhered coating as compared with a coating that would not penetrate.

It has not been possible to compare the result of Applicant's claimed invention with that of Rhoplex R-9 because the Office has not identified Rhoplex R-9 sufficiently to allow Applicant to reproduce it. Applicant has not been successful in identifying it or finding a source for it. Although Sheller states it was available from Rhom and Haas at the time that document was written, it is not among the present Rhoplex line of products.

Because of the lack of success on the part of both the Office and Applicant in identifying Rhoplex R-9 sufficiently to reproduce or obtain it for comparison purposes, Sheller is not sufficiently enabled to be a viable reference against patentability of Applicant's claims.

Without the identity or availability of Rhoplex R-9, Applicant cannot be expected to supply comparative evidence. No matter how many comparisons were offered, all would fail to show how Applicant's invention compares with the cited art.

Note, however, that no comparison is warranted since no prima facie case of obviousness has been presented.

Sheller is entitled "Improved Cork Gaskets." Sheller teaches that **gaskets** made of natural cork must provide an "effective seal between adjacent elements when positioned therebetween ..." (Page 1, lines 15-16) Sheller goes on to say that "applications require these cork gaskets be able to withstand relatively high temperatures and pressures and have a good oil and grease resistance." (Page 1, lines 26-29) In lines 29-32, Sheller then says "Often the fluid pressures and temperatures exceed those against which untreated cork would be effective." Then Sheller points out the effect of detergents in present day lubricating oils that tend to attack untreated gaskets in lines 32-33. To solve these problems noted with untreated natural cork gaskets, Sheller teaches the use of an emulsion of an acrylic modified vinylidene chloride copolymer. In lines 44-45, Sheller notes that plasticizers are used to increase flexibility. On page 1, at lines 48-52, Sheller clearly states the applicability of his invention, "The gaskets to which the present invention relates include, as described above, those **used to provide a fluid and vapour seal between confronting faces of adjacent machine elements.**" Further Sheller states that these are in sheet form at line 56 of page 1. Again, at line 74 these gaskets are referred to as "sheet articles." At lines 82-85, Sheller specifically teaches, "**It is important that the gaskets be completely covered with this emulsion; this may require several coats of the liquid emulsion** ..." On page 2 at line 24, Sheller again points out that plasticizer results in increased flexibility and at line 34 names dibutyl phthalate as a plasticizer.

Burns teaches the manufacture of certain synthetic cork closures for liquid containers where a thermoplastic elastomer (TPE) exemplified by a styrene block copolymer (column 4, lines 6-39) and a blowing agent are molded such that a skin is formed (column 1, line 65 through column 2, line 2). The resulting synthetic stopper is said **to offer high resistance to oxygen permeation and produce little or no product tainting.** (Column 2, lines 34-35) It is described further as "able to prevent passage of oxygen from the atmosphere to the wine, while simultaneously substantially **absorbing oxygen from the wine or the air space within the wine bottle...**" (Column 3, lines 27-30)

The Office Action of October 19, 2005 indicates that Applicant may not have clearly delineated the issues with respect to each reference and their combination.

The first issue with respect to the rejection of Applicant's claims 1, 3-8, 10, 11, and 13 in view of a combination of Sheller and Burns, is whether the teachings of each reference are rationally applicable to Applicant's claimed invention . This issue is quite separate from whether the references can be combined. The teachings of Burns are directed to synthetic cork-type closures and are, thus, sufficiently related to Applicant's claimed invention that one skilled in the art would reasonably expect the pertinent teachings of Burns to apply to the subject matter of Applicant's claims.

The teachings of Sheller, however, are not logically applicable to the present invention. They are in different field of art and address totally different problems. Applicant's invention relates to synthetic cork (structure) closures for liquid containers. The problem is "permeation of gases in and out of the cork and the scalping of flavors caused by the polymers used." Examples are polymeric "corks" for wine bottles. Sheller's teachings involve sheet form gaskets made of natural cork that are placed "between confronting faces of adjacent machine elements." Sheller is endeavoring to solve the problems faced by natural cork in the conditions of heat and pressure, contact with oil and grease, found in, for instance, operating machinery.

The differences that would lead a person skilled in the art to think that the teachings of Sheller are not applicable to the synthetic cork closures of Applicant's claimed invention were elaborated in the response to the previous Office Action and are:

> **Subject matter:** closures for containers of liquid v. gaskets for machinery
> **Material:** synthetic (plastic, polymeric) v. natural cork – the bark of a tree
> **Environment:** containers of liquid, e.g. bottles v. machinery with heat and pressure
> **Problems to be solved:** synthetic closures to liquid containers, while solving the problems of natural corks used to close liquid containers, have the problem of "uncontrolled permeation of gases in and out of the cork and the scalping of flavors caused by the polymers used." v. Sheller's solution for the problem of natural cork gaskets needing to withstand relatively high pressures and temperatures, e.g. between confronting faces of adjacent machine elements.

Thus, the teachings of Sheller are neither in the field of endeavor of Applicant's claimed invention, namely synthetic cork closures for liquid containers, nor pertinent to the same problem. Note, that the problem faced by Sheller is different from that attacked by Applicant as outlined previously.

Despite the fact that doing so requires ignoring such important elements of the references as the title (Improved Cork Gaskets), the Office endeavors to use the structural (bottle cork) and substance (natural cork) meanings of the word interchangeably to apply the teachings of Sheller to other situations. A very clear example of this is on page 6 of the Office Action of October 19, 2005:

> The cork closure taught in Sheller reads on the use of said closure in any environment wherein cork is commonly used to seal fluids (col. 1, lines 25 (sic)). The most common area wherein corks are used to seal fluids is in the packaging of fluid materials.

First, note that the first and second uses "cork closure" and "wherein cork is commonly used" refer to the material natural cork; then the third use "wherein **corks** are commonly used switches to a different meaning, the structural definition of cork. Switching back and forth among meanings violates the case law previously quoted.

Additionally, case law tells us that references must be read as a whole. Note:

> We must approach the issue of patentability in terms of what would have been obvious to one of ordinary skill in the art at time invention was made in view of the sum of all relevant teachings in the art, not in view of first one and then another of the isolated teachings in the art. We must consider the entirety of the disclosure made by the references, and avoid combining them indiscriminately. (citations omitted) We must not here consider a reference in a vacuum, but against the background of the other references of record which may disprove theories and speculations in the reference, or reveal previously undiscovered or unappreciated problems. In re Ehrreich, 200 USPQ 504; 590 F.2d 9024, 9029 (CCPA 1979).
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> [An] effort to establish obviousness by showing that each element of the patented products may be found somewhere in the prior art is also unavailing. In determining obviousness, "the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed." (citation omitted). Grain Processing v. American Maize-Products, 5 USPQ2d 1788, 1793 (Fed. Cir. 1988).
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> We agree with Hedges that the prior art as a whole must be considered. The teachings are to be viewed as they would have been viewed by one of ordinary skill. (citations omitted) "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Hedges, 228 USPQ 685, 687 (Fed. Cir. 1986).

Sheller tells us in his title and in both the sentences having phrases on line 25 that he is teaching about gaskets. This cannot be ignored. The line referred to by the Office is taken out of context of even the sentences in which it appears. The entire sentences with parts in line 25, which spans the end of one sentence and the beginning of the next, italicized are:

> However, in order to provide an effective seal, the cork gasket must not only fill the gap between these faces but also the gasket must lower the vapour transmission rate *of the sealed fluid. Additionally, modern day* applications require that these cork gaskets be able to withstand relatively high temperatures and pressures and have a good oil and grease resistance.

Thus, the very portion of the reference used by the Office is very specific that the subject matter of Sheller is gaskets.

As a separate second issue, one skilled in the art of natural cork gaskets would not reasonably apply the teachings of Burns to solve the problems faced by natural cork gaskets. Nor would one skilled in the art of bottle corks apply the teachings of Sheller to the problems faced by Burns. The reasoning is similar to that distinguishing Sheller's subject matter and problem from those of Applicant. In addition to the different subject matter, materials and environments, the problems are even more different. Where Sheller is concerned with grease and oil, including possible vapors thereof, in operating equipment, Burns is concerned with oxygen permeation through the cork and absorption by the cork. There is no teaching or suggestion that oxygen permeation and absorption (Burns) are related to vapor seals for hot grease and oil (Sheller), or that the teachings regarding one would be applicable to the other. Strikingly, there is no indication that plastic stoppers suitable for wine bottles, known by those skilled in the art to be suitable for use at or below ambient temperatures, generally a situation where even moderate heating is avoided, are applicable or even useful at the high operating temperatures taught by Sheller.

It is also noteworthy that Sheller describes the gaskets therein as sheet form, a shape seldom associated with corking wine bottles as in Burns.

Again, there are different subject maters, materials, environments, shapes and even reasonable doubts that the materials of Burns would tolerate the conditions of Sheller.

As a third issue, there is no valid motivation for combining the teachings of Sheller and Burns. The motivation is alleged to be that synthetic material has improved characteristics as taught by Burns. The main improved characteristic taught by Burns is that the synthetic material absorbs oxygen from the air space above the wine in the bottle and does not allow permeation of oxygen from the air outside. Oxygen permeation and absorption is not a problem recognized by those skilled in the art to be important in gaskets for machinery. Nor is there any teaching or suggestion that these oxygen permeation and absorption characteristics would indicate the synthetic material (thermoplastic elastomer) would have other characteristics that would be desirable in the heat and pressure of machinery.

Nor is there other motivation to combine. Combination would, in fact, not make sense. If the oxygen absorption and permeation characteristics of Burn's plastic wine corks could be taken as some indication to reduced permeation by hot grease and oil vapors in the presence of lubricant detergents in the Sheller environment, and if they would not melt in that environment, then the mere use of the synthetic material would solve the problem for which Sheller needed the coating on natural cork, then use of coating with the synthetic material would not be needed. Thus, if using the material of Burns in the gaskets of Sheller would solve the problems faced by Sheller, there would be no reason for the coating. Alternatively, if the synthetic material of Burns does not solve the problems faced by Sheller, then it makes no sense to use the synthetic material. Either way, using the synthetic material of Burns along with the coating of Sheller is not motivated.

The Office suggests that additional characteristics of natural cork that might by overcome by use of Burn's plastic in the Sheller environment of machinery are "color, dimensional stability, crumbling and cost." These apparently came from the teachings of Burns, but must be taken in context. First, while color may be important in wine corks, one

skilled in the art would hardly place that high on the list of important characteristics "between confronting faces of machine elements." (Sheller, column 2, lines 50-51.) Neither Burns nor Sheller list dimensional instability as such as a characteristic to overcome in natural cork. Burns does mention expansion, but in context, the expansion is explained in column 2, line 62 as that experienced by the cork on being removed with a corkscrew. Similarly, crumbling is discussed in that context at Burns, column 2, line 62. Those skilled in the art would realize that a reaction of a gasket in machinery to a corkscrew being screwed down the middle of it is not an issue. That would leave cost alone. Those skilled in the art would recognize that the cost factors of wine corks which are generally carved whole from chunks of tree bark and which must meet the aesthetic, taste and odor requirements of wine connoisseurs are not the same as those for gaskets which Sheller describes on page 1, lines 52-56 as "fabricated from sized cork particles which may be mixed with one or more types of filler substances in particle or liquid form and held together in sheet form by a binding agent." In other words, the motivations for using synthetic wine corks do not apply to gaskets.

As a fourth issue, there is no indication of success by combining the references. There is no indication that the materials of Burns would withstand heat, pressure, and hot oil and grease with detergents found in lubricants that Sheller says are required of the gaskets he discloses. Melting or dissolving in hot hydrocarbons might occur. Substituting the thermoplastic elastomer (TPE) of Burns into the gasket of Sheller, puts a plastic known to be moldable at 300-500 °F (Burns, column 6, line 46) in an environment known to need "good oil and grease resistance in situations of high temperature." (Sheller, page 1, lines 27-29) One notes that 300-500 °F is very close to normal household cooking temperatures of about 300-450 °F. Sheller teaches on page 1, lines 29-32, "Often the fluid pressures and temperature existing in modern processes quite exceed those against which untreated cork would be effective." Thermoplastic elastomers melt and are, thus, illogical in high temperature environments. Therefore, "to utilize the synthetic cork taught in Burns in place of the cork taught in Sheller" would introduce a TPE into an environment where it might melt, depending on the level of the high temperature and pressure encountered, might dissolve in or be deteriorated by the hot hydrocarbons and detergents therein. Furthermore, there is no indication that the coatings taught by Sheller for use on natural cork would stick to or work on synthetic materials.

The fifth issue is whether the combination of Sheller and Burns in the manner suggested by the Office would result in Applicant's claimed invention if they could be combined. Utilizing the synthetic cork taught in Burns in place of the cork taught in Sheller as alleged by the Office would not yield Applicant's claimed invention or render it obvious. Using the synthetic materials of Burns in place of the natural cork in Sheller would have resulted in a gasket of thermoplastic elastomer. A gasket made from TPE and coated according to the teachings of Sheller is still quite different from a synthetic cork-structured closure for a liquid container, even from a coated closure.

A sixth issue is whether there is the reasonable expectation of success required for a minimal prima facie case of obviousness. There is no teaching or suggestion that a coating of Sheller would stick to or otherwise be expected to be effective for the different purposes of either Sheller or Burns when on a thermoplastic elastomer such as that taught by Burns. Obviousness requires some expectation of success which is absent here. See:

> Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those

> of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. *See In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d (BNA) 1529, 1531 (Fed. Cir. 1988). Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure. *Id.* We agree with appellants that the PTO has not established the prima facie obviousness of the claimed subject matter. The prior art simply does not disclose or suggest the [*invention*], or convey to those of ordinary skill a reasonable expectation of success in doing so. In re Vaeck, 947 F.2d 488, 493; 20 U.S.P.Q.2d (BNA) 1438, (Fed. Cir. 1991).
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> The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. *See Burlington Industries v. Quigg*, 822 F.2d 1581, 1583, 3 USPQ2d 1436, 1438 (Fed. Cir. 1987); *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *Orthopedic Equipment Co. v. United States*, 702 F.2d 1005, 1013, 217 USPQ 193, 200 (Fed. Cir. 1983); *In re Rinehart*, 531 F.2d 1048, 1053-54, 189 USPQ 143, 148 (CCPA 1976). Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure.
> In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention. In re Dow Chemical Co., 837 F.2d 469, 473; 5 U.S.P.Q.2d (BNA) 1529, 1531 (Fed. Cir. 1988).

Thus, the combination of Sheller and Burns as described by the Office is improper, not motivated, does not teach or suggest Applicant's claimed invention, and has no expectation of success. Nor are the teachings of Sheller about natural cork gaskets in machinery in an environment of hot grease, oil and lubricant detergents applicable to either Burns teachings or Applicant's claimed invention. Therefore, there is no prima facie case of obviousness. Claims 1, 3-8, 10, 11, and 13 are not obvious under 35 U.S.C. § 103 over GB 1087801 (Sheller) in view of Burns (US 5,710,184). Rather, the claims are patentable.

Claim 3 is separately patentable. It requires that further requires that both ends of the cork structured closure are coated with the gas impermeable polymer. Sheller teaches, "it is important that the gaskets be completely covered with this emulsion. This may require several coats ..." Such a statement does not teach or suggest coating both ends of a cork closure. Burns teaches no coatings; thus, together the references cannot teach or suggest a cork-type closure with both ends covered. Thus, no prima facie case of obviousness has been made. No prima facie case of obviousness has been made. The Office has alleged that a completely covered gasket has both ends coated, but this again fails to distinguish between the use of "cork" in its structural sense in Claim 3 and its use in identifying the material of Sheller's gaskets. Semantically, both ends of an object having ends would be covered if an entire surface were covered, but realistically, one can hardly say a flat gasket as taught by Sheller even has two ends in a sense that can be applied meaningfully by one skilled in the art to an object having a cork-like structure. In a cork-like shaped structure, one readily recognizes that the ends are the portions exposed one to the liquid and the other to the atmosphere. Thus, coating the two ends takes care of the surface not surrounded by the liquid container. A gasket typically lacks these structural features and cannot suggest the ends of a cork structure. Claim 3 is patentable.

Claim 6 is separately patentable. It further requires that the gas impermeable polymer is a vinylidene chloride polymer which is (1) a copolymer of (a) from about 80 to about 93 mole percent vinylidene chloride and (b) from about 20 to about 7 mole percent of at least one monoethylenically unsaturated monomer copolymerizable therewith or (2) a copolymer of (a) from about 65 to about 75 mole percent vinylidene chloride and (b) from about 35 to about 25 mole percent of at least one monoethylenically unsaturated monomer copolymerizable therewith. The Office says that Rhoplex R-9 is "herein understood to read n(sic) the polymer of claim 6." **Again, Applicant respectfully requests a reference substantiating that understanding as required CFR §1.104 (d)(2).** Chemical identity of a Rhom and Haas trademarked (past?) product is not something that Applicant would have special knowledge of. Applicant therefore disputes the allegation that Rhoplex R-9 reads on the polymer composition in Claim 6 because there is no evidence that it does so. It is doubtful that a product described as an acrylic modified vinylidene chloride polymer would have only 7-20 or 25-35 mole percent monoethylenically unsaturated monomer copolymerizable therewith, with 93-80 or 75-65 mole percent vinylidene chloride. Without such a teaching, no prima facie case of obviousness has been made. Applicant's searching for Rohm and Haas references to polymers having vinylidene chloride and acrylic monomers has yielded only GB1026648 where vinylidene chloride is optionally present in an amount up to 32.5 % according to page 2, lines 68-74. Applicant doubts that this reference represents Rhoplex R-9 since it is a solution rather than an emulsion.

Similarly, Claim 10 is separately patentable. It requires a gas impermeable polymer coating composition comprising from about 5 weight percent to about 20 weight percent of a vinylidene chloride polymer, from about 70 weight percent to about 90 weight percent of an organic solvent or blend of organic solvents and from about 5 weight percent to about 10 weight percent of a thixotropic agent. No teaching of an offered reference indicates that Rhoplex R-9 or any other material described in the text of either reference reads on this composition. Again, **Applicant respectfully requests a reference teaching this composition as required by CFR §1.104 (d) (2).** Without such a teaching, no prima facie case of obviousness has been made. Claim 10 is patentable.

Furthermore, Claim 10 also requires a thixotropic agent. The statement that

> The Examiner points applicant to the definitions they provided. Specifically, a plasticizer is included into a polymer to improve workability, which is understood to be the same as decreasing the viscosity of the polymer – thereby meeting the definition of at 'thixotropic agent.

does not render substances as dissimilar as a plasticizer and thixotropic agent as explained in the previous remarks interchangeable. **Again, Applicant disputes this allegation and respectfully requests a reference showing the interchangeability of plasticizers and thixotropic agents as required by CFR §1.104 (d) (2).** Proper examination requires references to substantiate mere allegations of interchangeability or reading upon. Mere assertion accompanied by semantic twisting does not render it true that red reads on green. Without such a teaching, no prima facie case of obviousness has been made. Claim 10 is patentable.

Although not necessary for patentability, Applicant also disputes the idea that solvent is impliedly irrelevant as a "method" step. As explained previously, Applicant's **examples show the structural effects** of using a solvent. Those skilled in the art would recognize that preferred solvents result in solutions, by definition homogeneous, which not only penetrate well to give good adhesion as shown in the Examples of Applicant's invention, but also leave

homogeneous coatings which would be desirable in not having lumps or gaps that might result in poor seal or increased gas transmission or possibly in poor adhesion and flakes of coating in the liquid within the container. It is often particularly difficult to effectively coat one polymer on another. Solvent is shown by Applicant's examples to result in penetration that avoids separation, e.g. peeling. As shown previously, an **emulsion as taught by Sheller is, by definition, heterogeneous.**

Those skilled in the art know that an emulsion is not a solution in spite of the Office's allegation that "Sheller teaches the use of a solvent. Specifically ,the coating is described as an emulsion." Definitions have been supplied previously in this document, in the introductory remarks. **Applicant disputes the allegation that an emulsion teaches a solvent and respectfully requests a reference showing that it does as required by CFR §1.104 (d) (2).**

Thus, since allegations regarding Claim 10 are unsubstantiated and untrue, Claim 10 is separately patentable.

As the Board of Patent Appeals and Interferences has said in Ex parte Toyoda, 2000 WL 33520244:

> However, the subjective opinion of the examiner without evidence in support thereof does not provide a factual basis upon which the legal conclusion of obviousness may be reached. See In re GPAC Inc., 57 F.3d 1573, 1582, 35 USPQ2d 1116, 1123 (Fed. Cir. 1995) and In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

Thus, Sheller in combination with Burns does not render obvious any of Applicant's Claims. 1, 3-8, 10, 11, and 13, especially Claims 3, 6, 7, and 10 and claims dependent thereon, which are separately patentable.

Claims 2 and 9 stand rejected under 35 U.S.C. 103(a) as obvious over Sheller in view of Burns as applied to Claims 1, 3-8, 10, 11 and 13 in further view of W096/28378 (Dewar). Sheller in view of Burns is alleged to teach coating of cork. Dewar is alleged to add that only a single surface is coated. The alleged motivation to combine these references would be to reduce cost.

Sheller, the primary reference, **teaches directly away from coating less than all surfaces** by teaching specifically that it is **important that all surfaces be completely coated** even if it takes several coats. See Sheller page 1, lines 82-86. This . Reducing the cost by coating less than the entire surface is not a motivation obtained from the references or even reasonable in light of the teachings of the primary reference. After reading the teachings of Sheller regarding the importance of coating all the surfaces thoroughly, no one skilled in the art would look to the teachings of bottle corks to determine that it was suddenly desirable to coat fewer than all surfaces in Sheller, expense not withstanding.

The Office is reminded that it has long been established that:

> Prior art teachings unfavorable to the Patent Office position may not be avoided by labeling them "unexpected" as one of ordinary skill in the art would evaluate them as a whole for what they fairly disclose. In re Wagner, 152 USPQ 552, 560 (CCPA 1967)

> We agree with Hedges that the prior art as a whole must be considered. The teachings are to be viewed as they would have been viewed by one of ordinary skill. (citations omitted) "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Hedges, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986).
>
> We have noted elsewhere, as a "useful general rule," that references that teach away cannot serve to create a prima facie case of obviousness. In re Gurley, 27 F.3d 551, 553, 31 U.S.P.Q.2d 1130, 1132 (Fed. Cir. 1994). McGinley v. Franklin Sports, Inc., 60 U.S.P.Q.2d 1001; 262 F.3d 1339, 1353 (Fed. Cir. 2001).

Dewar teaches use of a coating of a **liquid** impermeable substance on a **natural** cork bottle closure, particularly a natural cork which is **low quality or made of cork particles glued together.** (Page 1, lines 12-16) The purpose is to avoid having off flavors from chemicals used to bleach the natural cork or to glue the particles of cork together. (Page 1, lines 5-11 and 15-16, respectively) Dewar teaches on page 3, at lines 3-5, "The coat(s) may only be applied to a portion of the surface of the mass of cork. For example, the coat(s) may only be applied to the face(s) of the closure that is likely to contact the contents of the container."

There is no motivation to combine these references despite the Office's assertion that "the motivation for doing so would have been to reduce cost." Reducing costs would not cause one skilled in the art to look to the teachings regarding avoiding off flavors from low quality natural cork bottle closures to decide how to reduce costs of gaskets coated to make them more resistant to high temperatures and pressures and detergents in lubricants. Nor would the teachings of Dewar, being directed to avoiding migration of flavors from chemicals used to bleach natural cork or glue used to glue together natural cork particles apply to synthetic corks like those of Burns (or Applicant's claimed invention). Certainly, if one were substituting the styrene polymer of Burn's corks into the teachings of Sheller as the Office applies the references, then one has at least 3 major reasons not to add the teachings of Dewar, namely, (1) the fact the teachings of Sheller teach against coating of less than all surfaces, (2) the fact that use of the Burn's material would avoid the problems "solved" be the teachings of Dewar (no off flavors from glue and bleach when using styrene polymer), (3) the Sheller environment is not analogous to that of a cork in a bottle where only one side contacts liquid as taught by Dewar.

The Office maintains that because Dewar teaches coating of one side is adequate to avoid the taste of bleach or glue from the cork in wine, limiting the coating of Sheller to one surface, despite Sheller's teaching against same, would be adequate. Those skilled in the art would not expect to be able to ignore specific teachings of Sheller regarding gaskets in hot machinery based on a barrier to glue flavor in wine. Finding isolated inconsistent teachings in references doe not render claims obvious. See In re Ehrreich, Grain Processing, and In re Hedges quoted previously.

Since those skilled in the art would not be motivated to combine such dissimilar art and to ignore the very specific teachings against coating less than the complete surface in the primary reference, no prima facie case of obviousness has been shown against Claims 2 and 9. Claims 2 and 9 are patentable.

Applicant's Claim 9 is separately patentable in view of these references even if a prima facie case of obviousness were made. It requires that the closure is coated using a process which comprises inserting a synthetic cork closure into a container, applying onto the free end of the synthetic cork closure a coating composition comprising a vinylidene chloride polymer dissolved in a solvent and allowing the solvent to evaporate.

Dewar teaches the opposite of the claimed situation. Dewar optionally coats only the end in contact with the liquid (wine). This does not teach or suggest coating only the free end of the cork. In fact, Dewar teaches away from coating the free end because that would not accomplish his purpose of protecting the wine from bleach and glue flavors. The Office maintains that the teachings of Dewar are not limited to the portion of the closure coated. Again, the reference must be read as a whole. Dewar says "applied to the face(s) of the closure that is likely to contact the contents of the container" on page 3, lines 3-5. Granted, he uses "for instance" before that phrase, but those sufficiently skilled in the art of wine making to know which end of a cork would contaminate the contents with the bleach and glue flavors found in the cork would know which end had to be treated to avoid this effect. Treating any other surface would not put a barrier between the wine and the cork. It would not work for the purposes taught by Dewar. Certainly, Applicant's claimed cork, with the barrier on the free end would not protect the wine from the flavors in the cork. The general atmosphere outside the bottle cork might be protected from the odors, but the odors and flavors in the cork would be confined to within the bottle space and, if anything, more likely to contaminate the wine because they could not vaporize elsewhere.

The Office's statement that "Thus, the cork taught by Sheller in view of Burns and Dewar is identical to the claimed cork" does not take the teachings of any of the references as a whole, ignores some of the words of the claim like "free end" and does not interpret the term "cork" in context. The combination of Sheller with the substitution of the material of Burns for the natural cork of Sheller as proposed by the Office, and further with the coating of just one surface according to the teaching of Dewar yields a gasket of a styrenic thermoplastic elastomer that may melt in hot machinery, coated with an unknown emulsion (not a solution) of "Rhoplex R-9" on one surface, a coating that because it is an emulsion cannot be expected to have the penetrating advantages taught by Applicant, and which according to the teachings of Sheller will not be adequate because it does not cover all surfaces. This is far from identical to Applicant's Claim 9:

> The synthetic cork closure of Claim 1 wherein the closure is coated using a process which comprises inserting a synthetic cork closure into a container, applying onto the free end of the synthetic cork closure a coating composition comprising a vinylidene chloride polymer dissolved in a solvent and allowing the solvent to evaporate.

Rather than describing a gasket in equipment, this claims a synthetic cork closure that can be **inserted into a container such that it has a free end** onto which a **coating can be applied after it is so inserted**. The coating is a vinylidene chloride polymer **dissolved in a solvent**, which is then allowed to evaporate. A gasket in machinery just does not have these features. Those skilled in the art, to whom claims are addressed and according to whose understanding claims must be interpreted, would see structure in such a claim.

Furthermore, Claim 9 requires that the closure is coated using a process which comprises inserting a synthetic cork closure into a container, applying onto the free end of the synthetic cork closure a coating composition comprising a vinylidene chloride polymer dissolved in a solvent and allowing the solvent to evaporate. This means that the closure would be coated on the outside (typically top) end. This is the opposite of the teaching of

Dewar, which requires that the end "likely to contact the contents of the container" be coated. The inside (typically bottom) end of a cork closure contacts the liquid. **A free end (outside) coating (Claim 9) would not avoid contamination of the liquid by the cork.** Those skilled in the art are not motivated to combine the references and much less likely to ignore the teachings away from the claimed invention in both Sheller that all surfaces must be coated as well as teachings in Dewar that the surfaces most likely to contact the liquid be coated. Thus, no prima facie case of obviousness has been made. Claim 9 is patentable.

Claim 12 stands rejected under 35 U.S.C. 103(a) as obvious over Sheller in view of Burns as applied to Claims 1, 3-8, 10, 11, and 13 further in view of US 4,320,047 (Murphy). Sheller is alleged to teach that the coating may comprise a thixotropic agent, but not explicitly silica. Murphy is alleged to teach silica as a known thixotropic agent. It is alleged that one can utilize the thixotropic agents taught in Murphy as the thixotropic agent taught in Sheller. The motivation is alleged to be that silica is a known thixotropic agent.

As previously addressed in this document, a plasticizer is not a thixotropic agent and is not similar to a thixotropic agent. **Sheller teaches that a plasticizer can be used in his coating. He does not teach or suggest that a thixotropic agent can be used.** The two are known to be unquestionably different by those skilled in the art. Thus, despite any teachings of Murphy, there is no tie between thixotropic agents and Sheller, Burns, and/or Dewar.

Murphy is not in art even remotely analogous the art area of any of the other references.

Murphy deals with the problem that "when fumed silica is added to a system containing an amine terminated reactive liquid polymer (ATRLP) and an epoxy resin in sufficient amount to produce the desired thixotropic characteristic, such a system would retard both the gel time and cure. However, when levels of fumed silica were reduced to where the gel time of the ATRLP/epoxy systems was not affected, the systems did not exhibit sufficient thixotropic characteristics." (Column 1, lines 13-21) Murphy solved this problem by addition of a solid mildly alkaline material, such as aluminum silicate clay or calcium carbonate filler, to thixotropic ATRLP/epoxy systems containing fumed silica to accelerate gel times of such systems. (Column 1, lines 40-44)

First, as shown previously, Sheller does not teach that the coating may comprise a thixotropic agent. **Sheller teaches that his coating may include a plasticizer, known by those skilled in the art to be completely different from a thixotropic agent as previously explained.**

Second, there is no motivation to combine the teachings of Sheller, Burns and Murphy as suggested by the Office. The Office alleges, "The motivation for doing so is that silica is a known thixotropic agents(sic)." This does not explain motivation to combine Sheller regarding natural cork gaskets, Burns regarding synthetic bottle closure corks and Murphy regarding amine terminated reactive liquid polymer (ATRLP) and an epoxy resin with fumed silica. Applicant is unable to find anything in Murphy regarding gaskets or closures for containers, and, in fact, no such relationship is alleged. Without any motivation to add a thixotropic agent to a gas impermeable polymer composition, particularly a vinylidene chloride copolymer composition as described in Claim 12, there is no prima facie case of obviousness. Mere assertion that plasticizers read on thixotropic agents does not serve to equate the two very different functional additives.

Also, the combination of Sheller and Burns is improper as previously shown and cannot be relied upon to teach the basic coating of a synthetic closure of a liquid container.

Thus, since no prima facie case of obviousness has been made regarding any of Applicant's claims, Claims 1-13 are patentable. Applicant respectfully requests allowance of Claims 1-13 at the Office's earliest convenience.

Respectfully submitted,

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